

PATENT COOPERATION TREATY

RECEIVED

JUN 29 2004

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

DINSMORE & SHOHL, LLP
One South Main Street, Suite 500
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One Dayton Centre
Dayton, Ohio 45402-2023
UNITED STATES OF AMERICA

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

JUN 29 2004

CLD/DOCKETING

TICK/AMS

JUL - 1 2004

Applicant's or agent's file reference

BAT 0079 PB

Date of mailing
(day/month/year)

24/06/2004

PAYMENT DUE

within 45 ~~XXXX~~ days
from the above date of mailing

International application No.

PCT/US2004/000556

International filing date
(day/month/year)

10/01/2004

Applicant

BATTELLE MEMORIAL INSTITUTE

1. This International Searching Authority

- (i) considers that there are 8 (number of) inventions claimed in the international application covered by the claims indicated ~~XXXX~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~XXXX~~ on the extra sheet:

- (ii) ☒ has carried out a partial international search (see Annex) ☐ will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:
see annex
- (iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby invited, within the time limit indicated above, to pay the amount indicated below:

EUR 1.550,00 x 7 = EUR 10.850,00
Fee per additional invention number of additional inventions total amount of additional fees

Or, _____ x _____ = _____

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. ☐ Claim(s) Nos. _____ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
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Authorized officer

Cristina Rincón Ruiz

REGISTERED

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
- see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 302 331 B1 (CHONGSIRIWATANA SONGSDHIT ET AL) 16 October 2001 (2001-10-16) column 12, line 29 - column 13, line 33 column 15, line 50 - column 16, line 12 figures 4-6	1-3
X	US 4 962 885 A (COFFEE RONALD A) 16 October 1990 (1990-10-16) column 2, line 34 column 3, line 30 figures 1,2	1-3
X	US 6 454 193 B1 (BUSICK DAVID R ET AL) 24 September 2002 (2002-09-24) the whole document	1-3

☐

Further documents are listed in the continuation of box C.

☒

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3

Spray head with an array of nozzles a charged electrode and a shroud.

2. claims: 4-6

Manifold with equidistant passages.

3. claims: 7-12

Spray shaping mechanism with electrodes.

4. claims: 13-20,22

Shroud having a particular material and shape.

5. claim: 21

Upside down sensor with on/off switch.

6. claims: 23,24

Spray head with wheels.

7. claim: 25

Spray head with rotating means.

8. claim: 26

Spraying system.

It is considered that the application does not comply with the requirement of unity of invention (Rule 13.1) for the reasons indicated below:

The definitions of the different (groups of) claimed inventions are only intended to identify said inventions in a concise manner. They may well, as such, comprise terms or generalisations which upon a close analysis could be found to extend the defined subject-matter beyond the contents of the application as filled.

Document D1 (US6302231), which is considered to represent the closest prior art, discloses a sprayer head with a nozzle comprising a manifold having an array of spraying sites, a charged electrode and a shroud that at least partially surrounds the nozzle.

The special technical features, as defined in Rule 13.2 PCT, of the first group of claims, are considered to be a spray head with a nozzle having discrete fluid spray sites and a shroud, solve the problem of providing a wide spray of the spray head.

The special technical features, as defined in Rule 13.2 PCT, of the second group of claims, are considered to be a manifold with passages of the same length, solve the problem of controlling the amount of fluid delivered at each spray site.

The special technical features, as defined in Rule 13.2 PCT, of the third group of claims, are considered to be a spray shaping mechanism, solve the problem of providing a spray with a determined shape.

The special technical features, as defined in Rule 13.2 PCT, of the fourth group of claims, are considered to be a spray head shroud, solve the problem of providing adequate material properties and masking the sprayed area.

The special technical features, as defined in Rule 13.2 PCT, of the fifth group of claims, are considered to be an upside down sensor, solve the problem of switching off the spray in case of wrong positioning.

The special technical features, as defined in Rule 13.2 PCT, of the sixth group of claims, are considered to be a spray head with wheels, solve the problem of translocating the device.

The special technical features, as defined in Rule 13.2 PCT, of the seventh group of claims, are considered to be a spray head with rotating means, solve the problem of orientating the head towards the target.

The special technical features, as defined in Rule 13.2 PCT, of the eighth group of claims, are considered to be a spraying system with a pump and a control panel, solve the problem of supplying the fluid to the sprayer head.

These special technical features are neither identical (see above) nor corresponding since they are directed to solving different problem (see above). Therefore the application is considered to lack the required novelty.

Before following the invitation to pay additional search fees the applicant is advised to carefully consider his intentions in latter stages of the procedure (i.e. Chapter II). Applicant should take into account that additional search fees, once paid, are unlikely to be refunded if at such a later stage it becomes in retrospect apparent that in the light of amendments of the claims such a payment was in fact unnecessary.

Such a case may arise where the applicant in that later stage of the proceedings arrives at a subject-matter to be protected which includes

the further subject here identified only in dependency on the subject identified here as the main (first) invention.

On the other hand the applicant is advised that not following the invitation may lead to a loss of rights concerning those subjects per se, identified here as further inventions.

It is furthermore pointed out that already at this stage, documents D1 and D2 appear to disclose subject matter relevant for claims 7-12 and 13,14,18-20.

Patent Family Annex

Information on patent family members

International Application No

T/US2004/000556

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6302331	B1	16-10-2001	JP 2004500230 T	08-01-2004
			AU 4364900 A	10-11-2000
			BR 0009993 A	08-01-2002
			EP 1194244 A1	10-04-2002
			WO 0064590 A1	02-11-2000
			ZA 200108589 A	18-10-2002
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US 4962885	A	16-10-1990	AR 221722 A1	13-03-1981
			AU 531759 B2	08-09-1983
			AU 4589379 A	25-10-1979
			BE 875649 A1	17-10-1979
			BR 7902307 A	23-10-1979
			CA 1140817 A1	08-02-1983
			CH 639874 A5	15-12-1983
			CS 216204 B2	29-10-1982
			DE 2915039 A1	25-10-1979
			FR 2423271 A1	16-11-1979
			GB 2018627 A ,B	24-10-1979
			HU 176541 B	28-03-1981
			IL 57098 A	15-06-1983
			IN 150842 A1	25-12-1982
			IT 1113881 B	27-01-1986
			JP 1463281 C	28-10-1988
			JP 54139645 A	30-10-1979
			JP 63007825 B	18-02-1988
			MX 150561 A	30-05-1984
			NL 7902774 A ,B,	19-10-1979
			NZ 190138 A	15-02-1983
			OA 6238 A	30-06-1981
			SU 913923 A3	15-03-1982
			ZA 7901659 A	30-04-1980
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US 6454193	B1	24-09-2002	AU 4365000 A	10-11-2000
			BR 0009992 A	08-01-2002
			EP 1171243 A1	16-01-2002
			JP 2003523817 T	12-08-2003
			WO 0064591 A1	02-11-2000
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Important Information for Applicants outside Europe

general

- the **claims cannot be changed** at this point in the procedure, the transmitted report is **not** the ISR (see Art. 19 PCT)
- non-payment does not lead to a **loss of rights**, a new procedure will be started on entry into the regional or national phase
- any payments have to be effected **directly** to this ISA (account details below), payments to other entities will not be accepted
- in case of a **total of more than 2 inventions** found: when paying please **specify exactly** which claims should be searched
- an **extension of the set time limit** cannot be granted, as the total number of days **must not exceed 45 days** (Rule 40.3 PCT)

payment by cheque or money transfer:

- the **date of payment** is considered to be the **date the money is booked** in the EPO account (details on extra sheet)
- faxed cheques are not considered to be a valid payment
- only payments in EUR are accepted, no equivalents in other currencies
- payments by **credit card** are **not possible**

payment by deposit account:

- the **date of payment** is considered to be the date that the **authorisation** to deduct fees from the deposit account is **received at the EPO**

***note:** if you don't have a deposit account with the EPO yourself you might want to consider using the account of an associate as a safe and quick way of paying*

payments under protest according to Rule 40 PCT:

- the protest will **not be accepted without a payment** of additional search fee(s)
- the protest has to be **accompanied by a technical reasoning**
- no **protest fee** needs to be paid yet, only additional **search fee(s)**

Account Details

Euro accounts of the European Patent Organisation

N° 3 338 800 00 (BLZ 700 800 00)

Dresdner Bank

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SWIFT Code: DRESDEFF700

N° 300-800 (BLZ 700 100 80)

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10/541681

JC14 Rec'd PCT/PTO 07 JUL 2005

THE INTERNATIONAL BUREAU OF WIPO

Applicant : BATTELLE MEMORIAL INSTITUTE et al.
Intern Application No.: PCT/US04/000556
Filing Date : 10 January 2004
Priority : U.S. Serial No. 60/439,254 filed 10 January 2003
U.S. Serial No. 60/439,257 filed 10 January 2003
U.S. Serial No. 60/439,606 filed 11 January 2003
Title : **SPRAY HEAD FOR ELECTROHYDRODYNAMIC
SPRAY DEVICE AND ELECTROHYDRODYNAMIC
SPRAYER SYSTEM**
Agent Ref. No. : BAT 0079 PB/40078.256

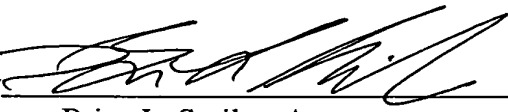
VIA FACSIMILE & AIR MAIL
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International Bureau of WIPO
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1211 Geneva 20, SWITZERLAND

**CHANGE OF APPLICANT/INVENTOR'S NAME
UNDER RULE 92bis**

One of the applicants/inventors in the above-identified PCT application respectfully requests that the spelling of his family name be changed from "CHONGSIRIWANTANA" to - - CHONGSIRIWATANA - - under Rule 92bis. He is the 7th named applicant/inventor on the PCT Request form. Please note that this is not a change of applicant/inventor, but a request to correct due to a typographical error.

Respectfully submitted,

DINSMORE & SHOHL, LLP

By 
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Date: 10 February 2004

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